

AMENDMENTS TO THE CLAIMS:

This listing of claims will replace all prior versions, and listings, of claims in the application.

Listing of Claims:

Claims 1-12 (canceled).

Claim 13 (currently amended): A method for developing wheat gluten comprising developing vital wheat gluten in a non-aqueous medium that contains less than 20% water, under conditions wherein the vital wheat gluten is not denatured and wherein the amount of vital wheat gluten being subjected to said developing is at least about 28% based on the total weight of said non-aqueous medium.

Claim 14 (previously presented): A method according to claim 13, wherein the non-aqueous medium contains less than 15% water.

Claim 15 (previously presented): A method according to claim 13, wherein the non-aqueous medium contains less than 10% water.

Claim 16 (previously presented): A method according to claim 14 wherein the non-aqueous medium has a water activity which is below 0.8

Claim 17 (previously presented): A method according to claim 14, wherein the developed wheat gluten has a water activity of less than 0.7.

Claim 18 (previously presented): A method according to claim 13, wherein the developed wheat gluten obtained has a water activity such that microbial growth is not possible.

Claim 19 (previously presented): A method according to claim 13 or 14, wherein the non-aqueous medium is a concentrated carbohydrate syrup.

Claim 20 (previously presented): A method according to claim 19, wherein the carbohydrate is selected from the group consisting of glycerol, glucose, fructose, sucrose, invert sugar, sorbitol, and lactose.

Claim 21 (currently amended): A method for developing wheat gluten comprising:

- (a) mixing a vital wheat gluten 20 - 60 % (d.s. w/w) with a non-aqueous medium that contains less than 20% of water;
- (b) kneading the mixture in a kneader at a temperature of between 50°C and 90°C;
- (c) continuing the kneading in the kneader until a value representing at least 75% of the maximal torque for kneading the mixture in the kneader is reached; and
- (d) shaping the developed gluten into a desired form.

Claim 22 (previously presented): A method according to claim 21, wherein the non-aqueous medium contains less than 15% water.

Claim 23 (previously presented): A method according to claim 22, wherein the non-aqueous medium contains less than 10% water.

Claim 24 (previously presented): A method according to claim 21, wherein the water activity of the non-aqueous medium is below 0.8.

Claim 25 (currently amended): A method according to claim 21, wherein said method is conducted whereby the developed gluten product has a water activity such that microbial ~~microbot~~ growth is not possible.

Claim 26 (currently amended): A method according to claim 21, wherein the kneading is halted ~~before~~ after 75% of the ~~maximal~~ value representing at least 75% of the maximal torque is reached.

Claim 27 (currently amended): A method according to claim 21, wherein other ingredients are added to the gluten during ~~the~~ a later stage of the kneading, or before, during or after shaping.

Claim 28 (previously presented): A method for preparing a developed wheat gluten storage stable against microbial growth comprising developing a wheat gluten under conditions whereby the wheat gluten is not denatured, said developing being conducted in a non-aqueous media that contains less than 20% of water.

Claim 29 (new): A method according to claim 28, wherein the amount of wheat gluten being subjected to said developing is at least about 28% based on the total weight of said non-aqueous medium.

Applicants amended claim 26 in a manner consistent with the original specification, including original claims, and respectfully request the Examiner to withdraw the objection.

Applicants amended claim 27 in a manner consistent with their originally filed specification in an effort to improve readability, and respectfully request the Examiner to withdraw the objection.

Applicants added new dependent claim 29 to include an exemplary amount of gluten. The amount is that which can be calculated based on data in the Examples.

Claims 13-27 define unobvious inventions over the Hashimoto reference.

Claims 13-27 each defines a novel, unobvious invention under 35 U.S.C. §103 over the Hashimoto et al. reference. (The prior Office Action did not refer to any other reference as part of the rejection as paragraph 5 is currently understood.)

Claim 13 refers to “developing vital wheat gluten” and it is specifically noted that developing is a defined term in the present specification as seen from the paragraph bridging pages 4-5. Applicants propose the amended claim 13 in a manner consistent with the definition but they do respectfully submit that since the term was defined, the definition would have been thought to have been applicable anyway.

The Hashimoto et al. reference concerns denatured gluten, but nonetheless was previously cited against the claimed inventions that concern developing a non-denatured (or at least essentially non-denatured) wheat gluten or vital wheat gluten.

The Hashimoto et al. reference (USP 3,814,815) relates to methods of manufacturing base gum of chewing gums. As will be demonstrated, the Hashimoto et al. reference effectively teaches away from the present claimed inventions. According to the

Hashimoto et al. reference, gluten denatured to more than 10% must be used as the raw material. Column 1, lines 52-52 and 57-58. The Hashimoto et al. reference states that “[g]um base denatured more than 10% and up to 60% are especially preferred.” Column 1, lines 60-62. This is consistent with the Hashimoto et al., Example 1 that discloses dry denatured gluten (25% denatured) and glycerin containing water (= a mixture of two parts glycerin and 1 part water). The Hashimoto et al. reference states that “[g]um bases denatured less than 10% have viscoelasticity that is so low that they cannot be employed for present purposes.” Column 1, lines 64-66 (emphasis added). In fact, the Hashimoto et al. reference explicitly states that outside the preferred range of 10% to 60% denaturation, the gum material “would not be generally acceptable.” Column 1, lines 66-68.

Applicants point out that the Shaw reference, U.S. Patent No. 5,366,740, cites the Hashimoto et al. reference as being “directed to the use of a gum base of gluten denatured to more than 10%.” Shaw reference, column 1, lines 23-24.

Furthermore, adding denatured gluten to glycerin that contains water would not have taught or motivated a person of ordinary skill in the art to undenatured gluten or vital gluten. The Examiner will appreciate that denatured gluten has a lower MW than gluten. Gluten is less soluble in a non-aqueous medium, and would have been expected to require higher content of water, and yet the current invention has demonstrated that non-denatured (or essentially non-denatured) gluten can be developed in a non-aqueous medium containing less than 20% of water (see, e.g., claim 13).

Finally, as to claim 21, it would also appear that the Hashimoto et al. reference would not have taught kneading in a kneader at a temperature of between about 50°C and 90° C; continuing the kneading in the kneader until a value that represents at least 75% of the maximal torque suitable for kneading the mixture in the kneader is reached; and shaping the developed gluten into a desired form.

Applicants accordingly submit the Hashimoto et al. reference is evidence of unobviousness and respectfully submit the rejection should be reconsidered and then withdrawn.

Claims 13-28 define unobvious inventions over the Kobayashi et al. reference.

The Kobayashi et al. reference (USP 5,603,977) relates to a gummy starch and method for preparation of the same. It provides a gummy starch prepared by combining a starch and saccharide and subsequently heating the mixture. Column 1, lines 60-62. The Kobayashi et al. reference discloses an open system at column 4, lines 4-10 and discloses heating to 170° C and stirring. At column 4, lines 11-24, the Kobayashi et al. reference discloses heat treatment with reference to a time to cause the saccharide to be caramelized. The heat treatment is preferably in the range of 150 to 220° C. Column 3, line 2 and column 4, lines 13-14. The heat treatment at 150 to 220° C results in the desired gummy properties. Column 3, lines 2-4.

When read in context, the Kobayashi et al. reference has a main focus on a gummy starch which can be used together with other “gummy” products. Applicants respectfully submit that is also a fair and correct reading of Example 17. In this Example, 10 g of gummy starch (prepared according to Example 1) are kneaded together with 5 g of rice-wax and 5 g of gluten. In total, 20 g “gummy” products are applied, of which 1/4 by weight is gluten. Furthermore, 2.5 g of glycerol is added. One would be remiss indeed to characterize this as a kneading method of gluten in glycerol. Besides, gluten is only a small part of the ‘gummy’ product available and only a minor amount of glycerol is used. Since gluten is only mentioned really in passing in a gummy product (chewing gum) of Example 17, and the reference requires a caramelization step to obtain the gummy product, Applicants respectfully submit that kneading of gluten is certainly not the thrust of USP 5,603,977 and this means the rejection has its genesis in hindsight.

Finally, as to claim 21, It would also appear that the Kobayashi et al. reference would not have taught kneading in a kneader at a temperature of between about 50°C and

90° C; continuing the kneading in the kneader until a value that represents at least 75% of the maximal torque suitable for kneading the mixture in the kneader is reached; and shaping the developed gluten into a desired form.

Accordingly, Applicants respectfully submit that the Kobayashi et al. reference would not have suggested their elected claimed inventions to a person of only ordinary skill in the art.

Claims 13-28 define unobvious inventions over the Shaw reference.

The presented elected claims would have been unobvious to a person of ordinary skill in the art over the Shaw reference. The Shaw reference (USP 5,366,740) relates to chewing gum comprising wheat gluten and the methods for manufacturing such compositions. The method for preparing the chewing gum begins with blending wheat gluten and texturizing agents and specifically that the chew texture of gluten is not acceptable unless softened by the addition of calcium carbonate or glutinous rice flour. See, e.g., Column 2, lines 22-30; Column 3, line 10 et seq.

According to the Shaw reference, preparing the chewing gum begins with blending the gluten and texturizing agents such as calcium carbonate and glutinous rice flour, with dry blending being preferred. Column 4, lines 41-48. The thus obtained flavored blend is placed in a mixing kettle (Column 4, lines 49-51), although alternatively the liquid components, including water and glycerol, may be added to the powder in a low-shear mixer and then the mixing may be completed in a higher-shear mixer. Column 4, line 52 et seq.

As exemplified in the Shaw reference, glycerin and water are used in a ratio of 2 parts glycerin per part of water (= 31% water - see Example 1, column 5). Contrariwise, the current invention has demonstrated that vital wheat gluten, which is essentially not denaturated, can be developed in non-aqueous medium containing less than 20% of water.

Finally, as to claim 21, it would also appear that the Shaw reference would not have taught kneading in a kneader at a temperature of between 50°C and 90° C; continuing the kneading in the kneader until reaching a value that represents at least 75% of the maximal torque suitable for kneading the mixture the kneader is reached; and shaping the developed gluten into a desired form.

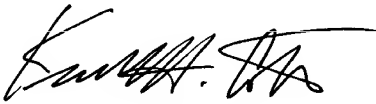
Conclusion

If the Examiner has any questions, please contact the undersigned by telephone. Applicants want to ensure all matters are addressed and resolved.

Applicants do, however, respectfully submit they have addressed all issues and respectfully submit that their claims are in condition to receive a Notice of Allowance.

Respectfully submitted,

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